

SECRETG-MB 691/63
28 October 1963

MEMORANDUM FOR: Chief, International Division, ORR

ATTENTION: [REDACTED]

FROM: Chief, CIA/PID (NPIC)

SUBJECT: Analysis of damage to Cuban Transportation System and Economy by Hurricane Flora.

REFERENCE: Requirement Nos. C-RR3-80,721 (Project No. C 1510-63) and C-RR3-80,726 (Project No. C 1511-63).

1. In response to Requirement Nos. C-RR3-80,721 (C 1510-63) and C-RR3-80,726 (C 1511-63), a study was made from aerial photography dated [REDACTED] to determine the location, type and extent of damage to highways, railroads, bridges and selected ports in Cuba. In addition, a total of 63 pre-selected sugar centrals in eastern Cuba were analysed to note extent of wind and/or water damage to each central and their immediate surroundings. In addition, the Rente Power Plant in Santiago de Cuba, the Moa Bay and Nicaro Nickel Plants, the Hermanos Diaz Petroleum Refinery at Santiago de Cuba, and the Camaguey Railroad Repair Shops were re-examined to ascertain if there was any damage to these facilities which was not previously reported in NPIC/R-1523/63.

2. The results of this study were placed on overlays, keyed to AMS Series E502, Sheets NF 17-8, NF 17-12, NF 17-16, NF 18-5, NF 18-9, NF 18-10, NF 18-13, NF 18-14, and NF 18-15, using symbols for damage to the transportation system and annotations to delineate damage to the sugar centrals and ports. Each of the sugar centrals was assigned a number on the overlays which corresponds with accompanying listing (Enclosure 1 to this memorandum).

3. A total of 18 annotated ozalid overlays (CIA/PID/GMB/P-4821/63 thru P-4829/63, copies 1 and 2) are herewith forwarded for your retention.

4. The photo analysis on this project was performed by the Industrial and Geo-Military Branches of CIA/PID (NPIC). Any questions concerning this project should be directed to [REDACTED] CIA/PID/GMB (NPIC), or [REDACTED] CIA/PID/IB (NPIC), who may be contacted on ext. 2549 and 2905 respectively.

ENCLOSURES:

1 Key to Sugar Centrals.

18 Annotated ozalid overlays (CIA/PID/GMB/P-4821/63 thru P-4829/63, copies 1 and 2).

DDR-DUPE

ENCLOSURE 1

| <u>New Name</u> | <u>Old Name</u> | <u>Location</u> |
|-------------------------------|-----------------|------------------|
| 1. Brasil | Jaronu | 21-51N 77-58W |
| 2. Ciro Redondo | Moron | 22-01N 78-43W |
| 3. Guatemala | Preston | 20-47N 75-39W |
| 4. Venezuela | Stewart | 21-44N 78-48W |
| 5. Antonio Guiteras | Delicias | 21-11N 76-34W |
| 6. Areglia Libre | Manati | 21-11N 76-55W |
| 7. Bolivia | Cunagua | 22-05N 78-20W |
| 8. Enrique Varona Gonzalez | Adelaida | 22-10N 78-50W |
| 9. Ignacio Agramote | Agramonte | 21-31N 78-14W |
| 10. Orlando Gonzalez | Algodones | 21-52N 78-59W |
| 11. Ecuador | Baragua | 21-42N 78-39W |
| 12. Carlos Manuel de Cespedes | Cespedes | 21-35N 78-17W |
| 13. Colombia | Elia | 21-01N 77-25W |
| 14. Republica Dominicana | Estrella | 21-30N 78-18W |
| 15. Argentina | Florida | 21-33N 78-15W |
| 16. Amancio Rodriguez | Francisco | 20-49N 77-35W |
| 17. Uruguay | Jatibonico | 21-08N 79-11W |

SECRET

- 2 -

| | | |
|--------------------------|--------------|------------------|
| 18. Sierra de Cubitas | Lugareno | 21-33N 77-29W |
| 19. Haiti | Macareno | 20-43N 77-52W |
| 20. Alfredo Alvarez Mola | Najasa | 21-13N 77-33W |
| 21. Patria o Muerte | Patria | 22-06N 78-38W |
| 22. Maximo Gomez | Punta Alegre | 22-24N 78-46W |
| 23. Candido Gonzalez | Santa Marta | 20-48N 78-01W |
| 24. Noel Fernandez | Senado | 21-34N 77-37W |
| 25. Siboney | Siboney | 21-16N 77-39W |
| 26. Panama | Vertientes | 21-19N 78-12W |
| 27. Primero de Enero | Violeta | 21-57N 78-27W |
| 28. Salvador Rosales | Algodonal | 20-09N 75-44W |
| 29. Loynaz Hechevarria | Alto Cedro | 20-34N 75-57W |
| 30. America Libre | America | 20-18N 76-14W |
| 31. Lopez Pena | Baguanos | 20-45N 76-02W |
| 32. Los Reinaldos | Baltony | 20-11N 75-29W |
| 33. Paquito Rosales | Borjita | 20-12N 75-47W |
| 34. Nicaragua | Boston | 20-54N 75-43W |
| 35. Cristino Narango | Cacocum | 20-45N 76-23W |

- 3 -

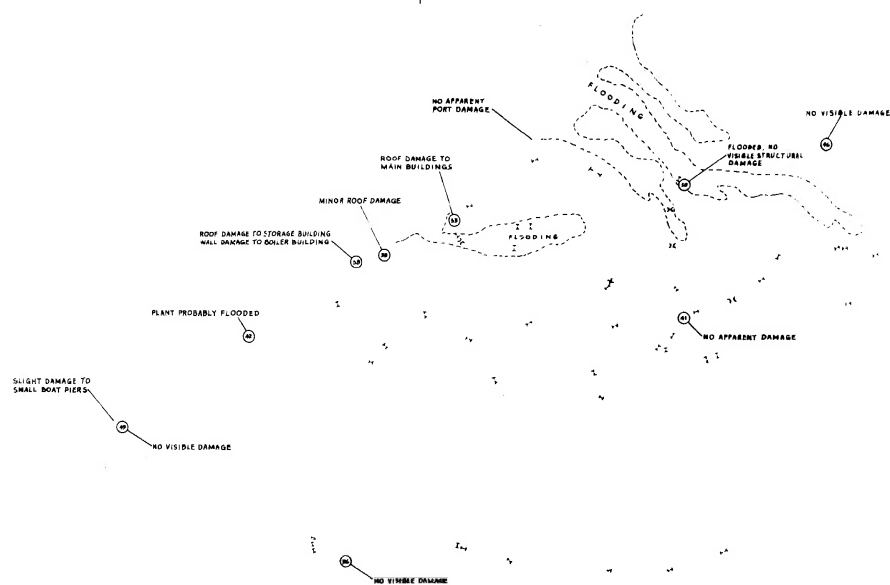
| | | |
|-----------------------------|---------------|------------------|
| 36. Luis E. Carracedo | Cape Cruz | 19-54N 77-19W |
| 37. Jesus Menendez | Chaparra | 21-09N 76-28W |
| 38. Francisco Castro Ceruto | Dos Amigos | 20-14N 77-18W |
| 39. Costa Rica | Ermita | 20-11N 75-24W |
| 40. Argeo Martinez | Esperanza | 20-12N 75-10W |
| 41. Bartolome Maso | Estrada Palma | 20-10N 76-57W |
| 42. Juan Manuel Marquez | Isabel "B" | 20-08N 77-27W |
| 43. Honduras | Isabel "G" | 20-13N 75-08W |
| 44. Peru | Jobabo | 20-54N 77-17W |
| 45. Paraguay | Los Canos | 20-03N 75-08W |
| 46. Arquimedes Colina | Mabay | 20-21N 76-47W |
| 47. Antonio Maceo | Maceo | 20-45N 76-30W |
| 48. Julio A. Meila | Miranda | 20-23N 75-55W |
| 49. Roberto Ramirez | Niquero | 20-03N 77-35W |
| 50. Dos Rios | Palma | 20-14N 76-01W |
| 51. Jose Nemesio Figueredo | Rio Cauto | 20-33N 76-55W |
| 52. Hector Infante | Romelie | 20-10N 75-05W |
| 53. La Demajagua | Salvador | 20-11N 77-14W |

- 4 -

| | | |
|--------------------------|--------------|------------------|
| 54. Manuel S. Tames | San Antonio | 20-09N 75-03W |
| 55. Urbano Noris | San German | 20-36N 76-08W |
| 56. Chile | Santa Ana | 20-16N 75-53W |
| 57. Rafael Freyre | Santa Lucia | 21-03N 76-02W |
| 58. Enidio Diaz Machando | Santa Regina | 20-19N 77-19W |
| 59. Ranulfo Leyva | Sofia | 20-19N 76-58W |
| 60. El Salvador | Soledad "G" | 20-13N 75-13W |
| 61. Fernando de Dios | Tacajo | 20-50N 75-56W |
| 62. Frank Pais | Tanamo | 20-40N 75-16W |
| 63. Rafael Reyes | Union | 20-12N 75-50W |



SECRET



1. ROAD OR RAILROAD WASHOUT
2. ROAD OR RAILROAD BRIDGE WASHOUT
3. BRIDGE STRUCTURAL DAMAGE
4. INTERMITTENT WASHOUT

SECRET

PHOTOGRAPHIC REFERENCE
SERIES: 8-300
SHEET: 8-300
EDITION: 1-1955

SECRET

① NO APPARENT DAMAGE TO
CENTRAL, N. ADJ. AND
KALINAC.

SEAL PRIMER 117

ROAD INUNDATED

② NO APPARENT DAMAGE
TO CENTRAL

③ SEVERE ROOF DAMAGE
TO MAIN BUILDINGS
OF CENTRAL

TOTAL ROOF DESTRUCTION
OF TWO STORAGE TANKS
MINOR ROOF DAMAGE TO
STORAGE WAREHOUSES
MINOR ROOF DAMAGE TO TWO STORAGE
BUILDINGS AND TWO SMALLER BUILDINGS
MODERATE ROOF DAMAGE TO THREE
STORAGE BUILDINGS
RAILROAD DAMAGED BY LANDSLIDE (VERY SEVERE)

SECRET

PHOTOGRAPHIC REFERENCE
MISSION DATE
MAP REFERENCE
SERIES E 508

SECRET

NOTE: ALL COASTAL LOWLANDS
AND RIVER VALLEYS HAVE BEEN OR
WILL BE HEAVILY INUNDATED

— ROAD OR RAILROAD WASHOUT
X ROAD OR RAILROAD BRIDGE WASHOUT
— BRIDGE STRUCTURAL DAMAGE
- INTERMITTENT WASHOUT

MINOR ROOF DAMAGE
AND INUNDATED
SURROUNDING FIELD INUNDATED
SOME LOW AREAS WASHED OUT

SUPERFICIAL ROOF DAMAGE TO WAREHOUSE
MINOR DAMAGE TO PIER FACILITIES
TWO MAJOR BRIDGES OUT

MINOR ROOF DAMAGE

SUPERFICIAL ROOF DAMAGE
TO STORAGE BUILDINGS
DAMAGE TO ONE (LONG) PIER

NO DAMAGE TO PORT

HEAVY ROOF DAMAGE
ADJACENT AREA AND
CANE FIELDS ARE
PARTIALLY INUNDATED

NO APPARENT DAMAGE
TO PORT

PORT IS OPERATIONAL
SOME ROOF DAMAGE TO SEVERAL
CENTRAL AND PORT STORAGE
BUILDINGS

NO APPARENT DAMAGE TO RICE PLANT.
SOME ROOF DAMAGE TO STORAGE AND
SUPPORT BUILDINGS. NO APPARENT
DAMAGE TO PORT

SURROUNDING CROPLANDS HEAVILY INUNDATED
SOME NEW PARTIALLY RECENT
AREA WAS INUNDATED. WATER NOW RECORDED
NO DAMAGE TO RAIL OR ROAD IN AREA
SUPERFICIAL ROOF DAMAGE

ENTERS IN 1,000 H
ROADS INUNDATED

5 KM OF ROAD INUNDATED
MINOR DAMAGE TO ROADBED

SECRET

PHOTOGRAPHIC REFERENCE
PERIOD DATE
MAP REFERENCE
SHEET: 8 504
SHEET: 8 504

SECRET

T

NO APPARENT DAMAGE
TO PORT FACILITIES

NO APPARENT DAMAGE
TO PORT FACILITIES

(M)

(H)
NO APPARENT DAMAGE
TO CENTRAL

(P)
NO APPARENT DAMAGE
TO CENTRAL

(Q)
NO APPARENT DAMAGE
TO CENTRAL, ROADS
OR RAILROADS

(R)
NO APPARENT DAMAGE
TO CENTRAL, ROADS
OR RAILROADS

ROAD UNDATED

SECRET

PHOTOGRAPHIC REFERENCE
MISSION DATE

MAP REFERENCE
SERIES R 302

SECRET

ROAD WASHED OUT 100 FT

③ NO APPARENT DAMAGE TO CENTRAL

④ NO APPARENT DAMAGE TO CENTRAL

ROAD WASHED OUT

② NO APPARENT DAMAGE TO CENTRAL ROADS AND RAILROADS

⑤ MINOR ROOF DAMAGE TO MAIN BUILDING OF SUGAR CENTRAL. NO APPARENT DAMAGE TO ROADS AND RAILROADS.

⑥ NO APPARENT DAMAGE TO CENTRAL, ROADS, OR RAILROADS

* MINOR WIND DAMAGE TO ONE BUILDING

GRADE AND SURFACE SLUMPING DUE TO MOISTURE CONTENT

⑦ MODERATE ROOF DAMAGE TO CENTRAL TO MAIN AND SUPPORT BUILDINGS

① ROAD HEAVILY ERODED WITH SEVERE DAMAGE TO GRADE AND WEARING SURFACE. CONCRETE DECKED BRIDGES APPEAR TO BE IN GOOD CONDITION. ONE CONCRETE DECK BRIDGE IS HEAVILY DAMAGED.

ROAD INUNDATED

CONCRETE DECK BRIDGE DESTROYED. SOUTH WEST APPROACH GRADE WASHED OUT

⑧ NO APPARENT DAMAGE TO CENTRAL, ROADS AND RAILROADS

⑨ THREE STORAGE BUILDINGS WITH ROOFS 1/2 DESTROYED. NO APPARENT ROAD OR RAILROAD DAMAGE

⑩ NO APPARENT DAMAGE TO CENTRAL

SLIGHT EROSION TO GRADE WHERE COMPLETELY WASHED THROUGH PLACES. NO APPARENT DAMAGE TO TRACKS

FLOODING
ROAD INUNDATED

SECRET

DETERMINING DETERMINING

MAP REFERENCE
SHEET E 502
SHEET NF 17-12
EDITION 1-A-MS

25X1

SECRET

T

MINOR FLOODING AREA
FLOODING
NO APPARENT DAMAGE
CENTRAL ROAD
RAILROADS
FLOODING IN RIVER
STREAM BASIN

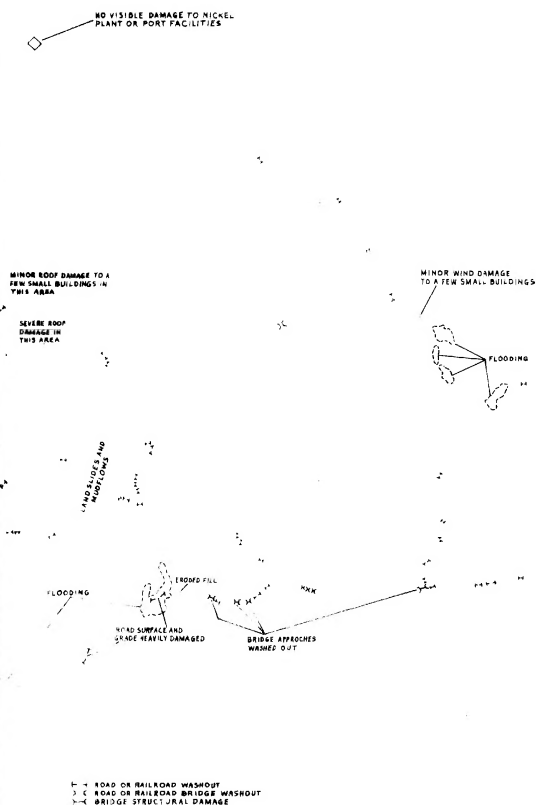
SIX PERS DAMAGED
FOURTEEN SMALLER
PIERS DESTROYED
NO APPARENT DAMAGE
TO BUILDINGS

SECRET

MAP REFERENCE
SERIES E 502
MAP 17-18
EDITION 1-AMAS
DATE 1966

25X1

SECRET



SECRET

